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CASE REPORT

Persistent Sciatic Vein – Unusual Cause of Reflux from the Popliteal Fossa and Sural Nerve Damage

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Introduction

Varicose veins arising from the popliteal fossa comprise about 25% of those in the lower limb and are usually derived from reflux at the saphenopopliteal junction. Because of the difficulties in identifying this and the considerable variation in anatomy that may exist, it has been suggested that all cases in which this is suspected, continuous wave doppler findings be confirmed preoperatively with duplex scanning.[1]

We describe here a patient who was not checked in the manner referred to above, and in whom, an unrecognised persistent sciatic vein may have been the souce of varicosities. At operation, the sural nerve was incorporated in the wall and suffered damage. Subsequently the varicosities recurred.

Case Report

A 27-year-old woman was referred in 1991, 6 months post-partum with superficial thrombophlebitis of left calf varicosities. This spontaneously settled but was replaced by persistent aching. Continuous wave doppler suggested isolated short saphenous reflux. At that time it was not our policy to check all such cases with popliteal fossa reflux.

At operation, a posterior transverse knee crease incision was used, and this revealed what was thought to be the saphenopopliteal junction 5 cm above the incision. The sural nerve was found inseparably in the wall of the vein. The vein was ligated after separation from the nerve. The vein was not stripped and no branches or other connection with the popliteal vein were noted. Postoperatively a sural neuropathy developed and has persisted.

Fourteen months later further aching varicosities behind the knee occurred and reflux was apparent on continuous wave doppler. Duplex study (Fig. 1) showed that the origin was an incompetent vein supplying recurrent calf varicosities, running deep into the popliteal fossa but superficial and lateral to the popliteal vein, and ascending into the proximal posterior thigh. There was no demonstrable connection to the popliteal vein in the calf or thigh. The deep veins and long saphenous were confirmed patent and competent on duplex.

Venography and varicography (Figs 2 and 3) revealed normal flow in the deep veins and long saphenous vein and varicosities connecting to a persistent sciatic vein eventually entering the pelvis to drain into the internal iliac vein on that side.

Simple stab avulsions were undertaken, since then there have been no further recurrences a year after her second procedure.

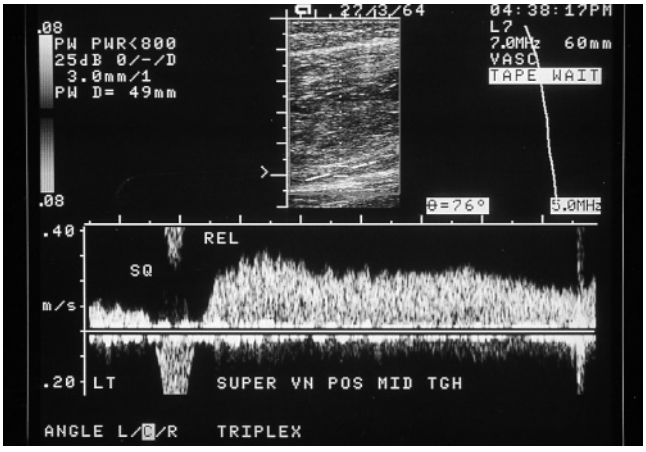

Fig. 1. Duplex of the persistent sciatic vein in the thigh showing reflux on calf squeeze.

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Fig. 2. Ascending venogram and varicogram showing patent long saphenous vein and deep venous system above-knee, with the presence of the persistent sciatic vein.

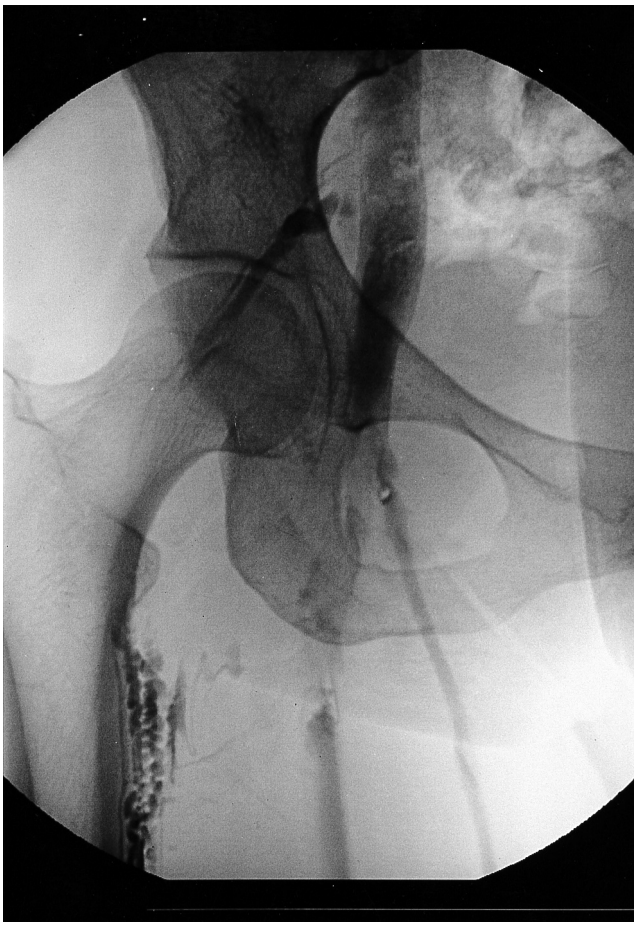

Fig. 3. Ascending venogram and varicogram showing drainage of persistent sciatic vein into the ipsilateral internal iliac vein.

Discussion

Persistent sciatic vein (PSV) has been described as an isolated primary entity[2] or in association with Klippel–Trenaunay Syndrome (KTS).[4] In one series, PSV occurred in patients with patent deep veins in six of more than 1200 venograms to study posterior varicose veins prior to surgery.[3] No association between persistent sciatic vein and an anomalous sural nerve has been reported although isolated aberrancy of the nerve has been seen.[5]

Embryology suggests the persistence of sciatic artery and vein can occur together, and in one reported case early proximal division of the sciatic nerve in the pelvis into tibial and common peroneal nerves was described.[7] During embryological development the developing posterior venous network involutes into its remnants of the ischiatic veins of the glutei and the satellite vein of the sciatic nerve, which may become secondary drainage for the limb in cases of deep venous obstruction.[3] It seems quite possible on this basis therefore that a sural nerve anomaly could be associated with an isolated primary persistent sciatic vein.

Sural nerve entrapment in the true short saphenous vein is documented and the nerve can be within the normal proximal short saphenous venous wall. This is a recognised cause of surgical injury.[6] The variability of venous anatomy in the popliteal fossa may also mean that the sural nerve is situated away from its "normal" position relative to the saphenopopliteal junction.[8]

The situation described here is clearly very rare and it seems likely that the "incompetent vein" was the PSV from the outset. If this were to have been the case, then a routine preoperative duplex screening might have alerted suspicion. Accurate diagnosis of persistent sciatic vein, however, probably necessitates varicography combined with ascending venography because the latter alone is frequently normal. Some advocate that in complex venous disorders this be supplemented with magnetic resonance imaging or angiography, venous phase angiography or descending venography.[4]

Treatment of this rare anomaly,[4] recognised preoperatively, has to our knowledge only been described in KTS. Authors suggested that simple avulsions be performed for mild symptoms, and excision via a posterior thigh approach, for severe venous claudicant pain, with symptomatic relief in their two cases at 7 and 4 years. The excised veins had no valves and required proximal ligation in the posterior buttock. Over 90 per cent of all patients do not require any intervention for this anomaly.[4] We performed avulsions rather than proximal sciatic vein ligation as this procedure was too extensive for mild symptoms and as effective for teating local recurrent varicosities.

This case report illustrates an unusual source of varicosities arising from a persistent sciatic vein, with an adherent sural nerve. It illustrates one more reason why "reflux" on CWD in the popliteal fossa should be checked with duplex preoperatively to identify reflux accurately. Other causes include an incompetent vein of Giacomini, reflux in the gastrocnemia veins or popliteal venous reflux. Duplex supplemented with varicography or descending venography should identify this unusual cause of popliteal fossa venous reflux and could have avoided exploration of the popliteal fossa in this patient.

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